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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,372	07/02/2003	Juyoung Park	51876P347	3711

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EXAMINER	
DUONG, CHRISTINE T	
ART UNIT	**PAPER NUMBER**
2462	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/612,372	PARK ET AL.	
	Examiner	Art Unit	
	CHRISTINE DUONG	2462	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 February 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 22 February 2010 has been entered.

Response to Amendment

This is in response to the Applicant's arguments and amendments filed on 22 February 2010 in which claims 1-4 are currently pending.

Claim Objections

2. Claims 1, 3, 4 are objected to because of the following informalities:

Regarding claims 1, 3, 4, it is unclear whether the claimed limitation “the QoS edge router” in lines 23, 19, 22 respectively, are intended to be the same as the "QoS edge router at a transmitter gateway” or the “QoS edge router at a receiver gateway”.

Regarding claims 3, 4, it is suggested to replace the claimed limitation “the first path” in lines 20, 23 respectively with --the first resource path--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krishnamurthy et al. further in view of Kobayashi (PG Pub US 2003/0048750 A1).

Regarding claim **1**, Krishnamurthy et al. discloses a routing apparatus for guaranteeing Quality of Service (QoS) in the Internet (figs. 1 and 4), comprising:

a QoS edge router at a transmitter gateway (network ingress edge element 102, fig. 1 or 404, fig. 4; where “the term "edge router" shall be understood as including an ingress edge element”, [0034] and “a user might use a wireless node to contact a edge element, which might in turn communicate with the network cloud using non-wireless technology [0008]) for receiving an allocating resource request from a transmitting node (QUERY message: “QUERY packet 402 that travels from the source node 400 to the network ingress edge element 404 … With the QUERY packet 402 the source node 400 indicates the QoS level it is requesting”, [0091]), setting a first path at a QoS data rate by signaling for setting the first path (ACK message: “Routing list (Lrouter): This list indicates the address of the core routers traversed by the request messages”, [0056] and “The amount and level of reserved resources is translated to a data transfer rate having a specific quality of service level”, [0035]), and transferring data at the QoS data rate through the first path by receiving a transferring data request from the transmitting node (“the architecture allows for the establishment of a data flow when a source node 100 transmits a reservation packet to an ingress edge element 102” [0025]);

at least one QoS core router (plurality of core routers 106, fig. 1 or 406, fig. 4) for receiving the allocating resource request from the QoS edge router at the transmitter gateway ("The QUERY packet 402 then travels through a plurality of routers 406 … With the QUERY packet 402 the source node 400 indicates the QoS level it is requesting", [0091]), setting a second path at the QoS data rate by signaling for setting the second path (ACK message: "Routing list (Lrouter): This list indicates the address of the core routers traversed by the request messages", [0056] and "The amount and level of reserved resources is translated to a data transfer rate having a specific quality of service level", [0035]) and transferring data at the QoS data rate through the second path by receiving the transferring data request from the QoS edge router at the gateway ("the architecture allows for the establishment of a data flow when … the ingress edge element 102 registers the reservation and forwards the request to the first of the core routers 106", [0025]); and

a QoS edge routing means at a receiver gateway (network egress edge element 108, fig. 1 or 408, fig. 4; where "the term "edge router" shall be understood as including … an egress edge element", [0034] and "Before arriving at the destination node 508, the control messages may pass another edge element 506 that connects the PQoS network to either another network or the final destination node 508" [0099]) for receiving an allocating resource request from the at least one QoS core router ("The QUERY packet 402 then travels through a plurality of routers 406 to the egress edge element 408 … With the QUERY packet 402 the source node 400 indicates the QoS level it is requesting", [0091]), setting a third path at the QoS data rate by signaling for

setting the third path (ACK message: "Routing list (Lrouter): This list indicates the address of the core routers traversed by the request messages", [0056] and "The amount and level of reserved resources is translated to a data transfer rate having a specific quality of service level", [0035]), and transferring data at the QoS data rate through the third path by receiving the transferring data request from the at least one QoS core router ("the architecture allows for the establishment of a data flow when … the core router 106 will either reject, accept, or modify the received request, indicate the price for the requested level of service, and forward the reservation to the next hop along the path to the destination, where the process is repeated until the reservation packet reaches the destination node 110", [0025]),

wherein the transmitting node at the transmitter gateway separates multimedia application data and general application data at the transmitter gateway ("service differentiation is achieved by marking a packet as belonging to different QoS levels. This can either be achieved by marking the packets at the source node 500 or at the ingress edge element 504" [0096]), and the QoS data rate is based on required data rate for guaranteeing QoS based on application type ("provide network users with the means for making dynamic bandwidth reservations that are suitable for … their applications' needs" [0020] and "the network resources are monitored and are configured to provide a plurality of predictable and dynamically variable quality of service levels, with each quality of service level guaranteeing a particular combination of network resources" [0006]), the QoS data rate for multimedia applications is prioritized over the QoS data rate for general applications by transmitting multimedia application

over an end-to-end reserved path, including the first, second, and third paths, that is established according to the allocating resource request issued by an application that requires a guaranteed QoS ("Quality of service relates to a variety of elements. However, assured bandwidth, and service with a high degree of time linearity are often included as important elements in setting QoS. Time linearity is important for telephony and video conferencing, and other applications where real-time delivery of streaming media are required" [0031] and "The preceding end node-to-end node reservation example is depicted graphically in FIG. 4, wherein the source node 400 starts the reservation procedure by issuing a QUERY packet 402 that travels from the source node 400 to the network ingress edge element 404. The QUERY packet 402 then travels through a plurality of routers 406 to the egress edge element 408 and finally to the destination node 410. With the QUERY packet 402 the source node 400 indicates the QoS level it is requesting, the amount of resources to reserve, and pricing information" [0091] and fig. 4),

the QoS edge router monitors whether the transmitting node transfers data corresponding to the resource reserved by the transmitting node, prior to setting the first path at the QoS data rate that is based on the required data rate for guaranteeing QoS based on the application type ("The edge elements maintain detailed per-flow state information, which includes the amount of consumed network resources, quality of service level, and flow identity. Admission control, and traffic policing and traffic shaping is mainly realized at the edge elements… the edge elements need to implement policing and/or shaping mechanisms to assure the conformity of the data flows to their reserved

network resources [0031] and "the ingress edge element 504 is responsible for ensuring the conformity of the entering flows to their reserved resources. This entails using policing or shaping mechanisms that drop or reduce the priority of packets that are sent in excess of the reserved resources" [0096]).

However, Krishnamurthy et al. fails to specifically disclose the transmitting node separates multimedia application data and general application data, the QoS data rate is based on required data rate for guaranteeing QoS based on application type and a QoS data rate for multimedia applications is guaranteed and a QoS data rate for general applications data is not guaranteed.

Nevertheless, Kobayashi discloses the transmitting node separates multimedia application data and general application data ("the packet discrimination unit 31 of the network relay apparatus 21A having the configuration discriminates and classifies the data (packets PKT) flowing from the subnetwork 23A. For example, UDP is used for multimedia data, while TCP is used for guaranteeing the reliability of the data transmission for http data or spreadsheet data" Kobayashi [0090]) and the QoS data rate is based on required data rate for guaranteeing QoS based on application type ("the selecting means 14 is comprised of a route selection condition setting unit 33 for setting a condition for selecting the optimal route of paths for transfer of each data separated in accordance with a data classification condition serving as a reference for discrimination of the type of data based on bandwidth information Ib and congestion information Ic obtained from other network relay apparatuses (21B to 21E) and makes the holding means 15 hold the optimal route (Ir) selected in accordance with the route

selection condition setting unit 33" Kobayashi [0083]), a QoS data rate for multimedia applications is guaranteed and a QoS data rate for general applications data is not guaranteed ("each router can transmit multimedia data Dm requiring a relatively large bandwidth and spreadsheet data or http data or other job media data Dn for which bandwidth is not required" Kobayashi [0176]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have the transmitting node separate multimedia application data and general application data, the QoS data rate based on required data rate for guaranteeing QoS based on application type and a QoS data rate for multimedia applications is guaranteed and a QoS data rate for general applications data is not guaranteed because "the classification condition setting unit 32 is set with the TCP and UDP as the classification conditions and discriminates the TCP data and UDP data to separate the data" (Kobayashi [0091]) and "it is possible to transmit data for each type of traffic, that is, for each type of data, while selecting the optimal route commensurate with that type" (Kobayashi [0098]).

Regarding claim **2**, Krishnamurthy et al. discloses everything claimed as applied above (see *claim 1*). In addition, the QoS edge router at the transmitter gateway monitors whether a quantity of data transferred from the transmitting node is smaller than the allocated resource ("Packets sent in excess of the reserved network resources violate the source's service profile, (which was established during the reservation setup)", [0031]).

Regarding claims **3** and **4**, Krishnamurthy et al. discloses a computer readable recording medium and a routing method for guaranteeing Quality of Service (QoS) in the Internet (figs. 1 and 4), comprising the steps of:

(a) receiving an allocating resource request from a transmitting node at a transmitter gateway and setting a resource path to a receiving node at a QoS data rate by signaling of each router, including a QoS edge router at the transmitter gateway (network ingress edge element 102, fig. 1 or 404, fig. 4; where "the term "edge router" shall be understood as including an ingress edge element", [0034] and "a user might use a wireless node to contact a edge element, which might in turn communicate with the network cloud using non-wireless technology [0008]), a QoS core router, (plurality of core routers 106, fig. 1 or 406, fig. 4) and a QoS edge router at a receiver gateway (network egress edge element 108, fig. 1 or 408, fig. 4; where "the term "edge router" shall be understood as including … an egress edge element", [0034] and "Before arriving at the destination node 508, the control messages may pass another edge element 506 that connects the PQoS network to either another network or the final destination node 508" [0099]), for setting a first, second, and third resource path, respectively (QUERY message: "QUERY packet 402 that travels from the source node 400 to the network ingress edge element 404. The QUERY packet 402 then travels through a plurality of routers 406 to the egress edge element 408 and finally to the destination node 410. With the QUERY packet 402 the source node 400 indicates the QoS level it is requesting, the amount of resources to reserve", [0091]; and ACK message: "Routing list (Lrouter): This list indicates the address of the core routers

traversed by the request messages", [0056] and "The amount and level of reserved resources is translated to a data transfer rate having a specific quality of service level", [0035]); and

(b) receiving a transferring data request from the transmitting node and transferring data at the QoS data rate to the receiving node through the resource path reserved by the QoS edge router at the transmitter gateway, the QoS core router and the QoS edge router at the receiver gateway ("the architecture allows for the establishment of a data flow when a source node 100 transmits a reservation packet to an ingress edge element 102, the ingress edge element 102 registers the reservation and forwards the request to the first of the core routers 106, the core router 106 will either reject, accept, or modify the received request, indicate the price for the requested level of service, and forward the reservation to the next hop along the path to the destination, where the process is repeated until the reservation packet reaches the destination node 110" [0025]),

wherein the transmitting node separates multimedia application data and general application data at the transmitter gateway ("service differentiation is achieved by marking a packet as belonging to different QoS levels. This can either be achieved by marking the packets at the source node 500 or at the ingress edge element 504" [0096]), and the QoS data rate is based on required data rate for guaranteeing QoS based on application type ("provide network users with the means for making dynamic bandwidth reservations that are suitable for … their applications' needs" [0020] and "the network resources are monitored and are configured to provide a plurality of predictable

and dynamically variable quality of service levels, with each quality of service level guaranteeing a particular combination of network resources" [0006]), the QoS data rate for multimedia applications is prioritized over the QoS data rate for general applications by transmitting multimedia application over an end-to-end reserved path, including the first, second, and third paths, that is established according to the allocating resource request issued by an application that requires a guaranteed QoS ("Quality of service relates to a variety of elements. However, assured bandwidth, and service with a high degree of time linearity are often included as important elements in setting QoS. Time linearity is important for telephony and video conferencing, and other applications where real-time delivery of streaming media are required" [0031] and "The preceding end node-to-end node reservation example is depicted graphically in FIG. 4, wherein the source node 400 starts the reservation procedure by issuing a QUERY packet 402 that travels from the source node 400 to the network ingress edge element 404. The QUERY packet 402 then travels through a plurality of routers 406 to the egress edge element 408 and finally to the destination node 410. With the QUERY packet 402 the source node 400 indicates the QoS level it is requesting, the amount of resources to reserve, and pricing information" [0091] and fig. 4),

the QoS edge router monitors whether the transmitting node transfers data corresponding to the resource reserved by the transmitting node, prior to setting the first path at the QoS data rate that is based on the required data rate for guaranteeing QoS based on the application type ("The edge elements maintain detailed per-flow state information, which includes the amount of consumed network resources, quality of

service level, and flow identity. Admission control, and traffic policing and traffic shaping is mainly realized at the edge elements… the edge elements need to implement policing and/or shaping mechanisms to assure the conformity of the data flows to their reserved network resources [0031] and "the ingress edge element 504 is responsible for ensuring the conformity of the entering flows to their reserved resources. This entails using policing or shaping mechanisms that drop or reduce the priority of packets that are sent in excess of the reserved resources" [0096]).

However, Krishnamurthy et al. fails to specifically disclose the transmitting node separates multimedia application data and general application data, the QoS data rate is based on required data rate for guaranteeing QoS based on application type, the computer executable instructions are implemented in a high capacity microprocessor included in a routing apparatus for guaranteeing QoS in the Internet and a QoS data rate for multimedia applications is guaranteed and a QoS data rate for general applications data is not guaranteed.

Nevertheless, Kobayashi discloses the transmitting node separates multimedia application data and general application data ("the packet discrimination unit 31 of the network relay apparatus 21A having the configuration discriminates and classifies the data (packets PKT) flowing from the subnetwork 23A. For example, UDP is used for multimedia data, while TCP is used for guaranteeing the reliability of the data transmission for http data or spreadsheet data" Kobayashi [0090]) and the QoS data rate is based on required data rate for guaranteeing QoS based on application type ("the selecting means 14 is comprised of a route selection condition setting unit 33 for

setting a condition for selecting the optimal route of paths for transfer of each data separated in accordance with a data classification condition serving as a reference for discrimination of the type of data based on bandwidth information Ib and congestion information Ic obtained from other network relay apparatuses (21B to 21E) and makes the holding means 15 hold the optimal route (Ir) selected in accordance with the route selection condition setting unit 33" Kobayashi [0083]), computer executable instructions are implemented in a high capacity microprocessor included in a routing apparatus for guaranteeing QoS in the Internet ("concentrate the resources of the network relay apparatus 21 such as the internal CPU or memory for packet transmission processing" Kobayashi [0270]), a QoS data rate for multimedia applications is guaranteed and a QoS data rate for general applications data is not guaranteed ("each router can transmit multimedia data Dm requiring a relatively large bandwidth and spreadsheet data or http data or other job media data Dn for which bandwidth is not required" Kobayashi [0176]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have the transmitting node separate multimedia application data and general application data, the QoS data rate based on required data rate for guaranteeing QoS based on application type, the computer executable instructions implemented in a high capacity microprocessor included in a routing apparatus for guaranteeing QoS in the Internet and the QoS data rate is based on required data rate for guaranteeing QoS based on application type and a QoS data rate for multimedia applications is guaranteed and a QoS data rate for general applications data is not guaranteed because "the classification condition setting unit 32 is set with

the TCP and UDP as the classification conditions and discriminates the TCP data and UDP data to separate the data" (Kobayashi [0091]) and "it is possible to transmit data for each type of traffic, that is, for each type of data, while selecting the optimal route commensurate with that type" (Kobayashi [0098]).

Response to Arguments

5. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINE DUONG whose telephone number is (571)270-1664. The examiner can normally be reached on Monday - Friday: 830 AM-6 PM EST with first Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Seema S. Rao/
Supervisory Patent Examiner, Art Unit 2462

/Christine Duong/
Examiner, Art Unit 2462
07/01/2010